MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

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W. H. MAW, Esq., PRESIDENT, in the Chair.

Major Alexander Davidson Fleming, Artillery Mansions, 75 Victoria Street, London, S.W.,

was balloted for and duly elected a Fellow of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended:—

Edgar T. Adams, 5 Warkworth Street, Cambridge (proposed by E. T. Whittaker);
Robert Jonckheere, Observatoire Stella, Roubaix, France (proposed by Camille Flammarion);
John Stewart, Chief Officer, R.M.S. "Empress of China," The Willows, Wallasey, Birkenhead (proposed by E. B. Knobel); and
Samuel Veevers, Normanton, Kimberley Drive, Great Crosby, near Liverpool (proposed by R. C. Johnson).

Seventy-seven presents were announced as having been received since the last meeting, including, amongst others:—

W. Bramsen, Japanese Chronological Tables, presented by E. B. Knobel; Optical Convention, Proceedings of the Meeting May–June, 1905, presented by the Committee; Oxford Astrographic Catalogue, vol. i., presented by the University Observatory, Oxford; J. A. Parkhurst, Researches in Stellar Photometry, presented by the author; Royal Observatory, Greenwich, Astronomical Observations, etc., presented by the Observatory; Royal Observatory, Cape of Good Hope, Annals, vols. x., xii., Astrographic Catalogue, etc., presented by the Observatory.

Astrographic Chart: 20 charts, presented by the Royal Observatory, Greenwich, and 19 charts presented by the San Fernando Observatory. Photographs of the spectrum of Mira Ceti, presented by the Rev. W. Sidgreaves.

On the Possibility of Improving the Places of the Reference Stars for the Astrographic Catalogue from the Photographic Measures. By H. H. Turner, D.Sc., F.R.S., Savilian Professor.

1. On each of the plates taken for the Astrographic Catalogue there are certain stars of which meridian observations have been made, and the constants of the plate are found by using these recorded places. But the places are often defective, from errors of observation and accumulated proper motions; and the errors are indicated by the residuals found on comparing the photographic measures (reduced with the plate-constants found by using all the stars) with the individual meridian places. But these residuals cannot be taken as satisfactory corrections to the adopted places, because the plate-constants, having been found from faulty meridian places, are themselves faulty.

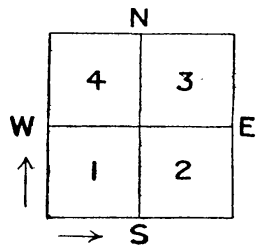

FIG. 1.

2. Taking only a single plate, if we correct the adopted places by the residuals found, and then solve for plate-constants again, we shall get precisely the same constants as before, and the residuals now will be all zero; but the improvement is of course only fictitious, and no real advance has been made. We need not, however, restrict ourselves to a single plate. Every star occurs on at least two plates, and we get at least two different residuals for it. Moreover, the stars in the four quarters of any plate will, as a rule, be on four different overlapping plates. Shall we then adopt as corrections to the original places the means of the residuals for each star (usually two, but sometimes more), and then determine the plate-constants afresh? There is no *prima facie* objection to this course; but it is questionable whether it is the best possible, for the following reason.

3. Call the residuals determined from the plate itself A, and those from other plates B: it is proposed to use $\frac{1}{2}(A+B)$. Now the portion $\frac{1}{2}A$ is simply non-effective. It has been already remarked